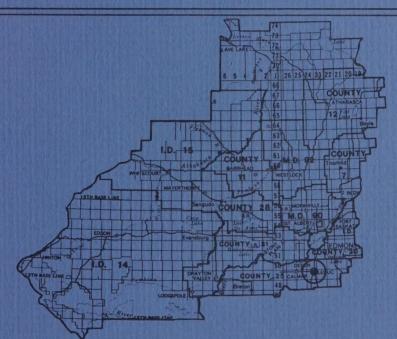
A CONSENSUS OF

COSTS AND RETURNS

GRAIN SILAGE

50 ACRES

320 ACRE FARM
STRATHCONA - LEDUC COUNTIES



NORTH WEST ALBERTA

MARKETING DIVISION - ALBERTA DEPARTMENT OF AGRICULTURE



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A CONCENSUS OF COSTS & RETURNS

FOR

GRAIN SILAGE PRODUCTION

50 Acres of Silage
Strathcona & Leduc Counties

By

Richard S. Andersen
Regional Farm Economist

The author wishes to acknowledge the assistance of the farmers from Strathcona and Leduc Counties who provided the basic data, Don Christensen and Don Young, D. A.'s of the respective counties who helped gather the data and assisted in the preparation of this report.



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INTRODUCTION

Today's farming demands that cost and return information be available for all alternatives which the producer could consider when planning future production. Narrowing profit margins have forced the farmer to keep a close eye on all production costs and expected returns. This report provides an estimate of the costs and returns of producing grain silage based on the concensus of a group of farmers in the Edmonton and Leduc districts.

OBJECTIVES

This report was prepared to provide an estimate of costs of production and the expected returns from a 50 acre oats/barley silage system. Such information can be an important guide in decision-making, but the reader should keep in mind that costs vary between producers because of differences in land and cultural practices. The farmer's own records are essential to determine what it actually costs to produce a crop on his particular farm.

This report can be useful for management decisions:

- 1. In selecting the enterprise or crop rotation yielding the highest returns.
- 2. In determining the amount of cash required to operate during a season.
- In determining the amount of time expected to be spent on an enterprise.

Today's farming description only one products out of the collect between the collection of the collection.

CALL SUBJECT

production and the operated recember to a to are enthalted in the production of the control of t

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- 4. For projecting the expense and income when considering new investments requiring credit.
- 5. In determining how the expenses & receipts should be shared in rental arrangements.
- 6. To compare to actual costs incurred in your farming enterprises.

SOURCE & METHOD OF DATA COLLECTION

Following the expression of local interest, a number of producers were contacted and asked to attend a one-day workshop at which they could contribute information which they felt typically represented their production methods. The C. R. D. (Consensus Research Data) approach relies on this group participation to arrive at a consensus of opinion on production techniques, investment levels and costs. The data collected represents typical or most representative costs and returns rather than averages.

Staff from the Alberta Department of Agriculture are present at the workshops to guide the discussion and assist in the collection of data. After the raw data is assembled at this meeting, further calculations and documentation are carried out. Each producer who participates at the workshop has the opportunity of reviewing the material prior to publication.

ASSUMPTIONS SPECIFIC TO THIS STUDY

(1) The farm consisted of 320 acres in the following rotation:

Silage 50
Grain 200
Forage 50
Native Pasture 20

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Married Systems

- (2) Annual use of machines was based on the above cropping pattern.
- (3) Yield per acre was based on averages expected by the producers with the inputs and operations described in the cost operations:

<u>Crop</u> <u>Yield</u> <u>Value</u>

Grain Silage 8 Tons (wet basis) \$7.00/ton

(4) Seeding rate and estimated cost was:

 Crop
 Rate
 Price
 Cost

 Barley
 3/4 bu./acre
 \$1.35/Bu.
 \$1.01/acre

 Oats
 1½ bu./acre
 \$0.90/Bu.
 \$1.13/acre

(5) Fertilizer rate and cost:

Type	Rate	Price	Cost
33-0-0	5 01b s/acre	\$.03/1b.	\$1.63/acre
26-13-0	601bs/acre	\$.0375/1b.	\$2.25/acre

(6) Weed Control costs:

Type	Rate	Price	Cost
MCPA	7oz/acre	\$0.07/oz	\$0.50/acre

- (7) Value of land: \$150/acre and taxes \$2.00/acre.
- (8) Interest rates: Machinery $7\frac{1}{2}\%$; Real Estate 7%.
- (9) Labor: \$2.00/hour all labor including owner's and hired.
- (10) Hauling costs based on total miles required to haul silage from field to silo.
- (11) Tractor and machine operating costs are based on information provided by the Alberta Department of Agriculture.
- (12) Storage structure used was a 20' X 60' wood stave silo.
- (13) Storage costs do not reflect costs for visible and invisible silage losses in the silo.
- (14) The cash and operator labor costs for harvest were adjusted linearly for yield variations above and below the reported 8 tons per acre as reported in Table 2 and Table B. For example, the costs for 8 tons per acre were calculated as follows:

 $(5.6/8) \times \$3.86(Cash Harvest) = \2.70

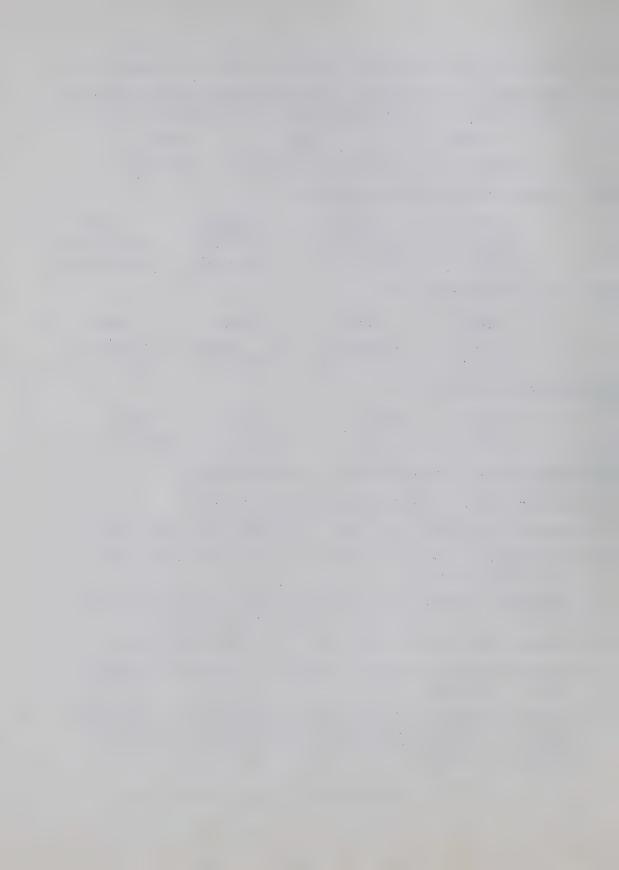


TABLE 1

Summary of Consensus Report Costs and Returns at 8T/Acre Yield

	Per Acre	Per Ton
Cash Cultural Costs Cash Harvest Costs at 8T/Acre Cash Overhead Costs	8.10 3.86 4.27	1.02 .48 .53
Total Cash Costs	16.23	2.03
Non-Cash Overhead Operator's Labor at 8T/Acre	70.54	8.82 •35
Total Non-Cash Costs	73.33	9.17
Expected Returns (8 Tons @ \$7.00)	56.00	7.00
Gross Cash Margin	39.77	4.97
Return to Risk and Management	<u>-33.56</u>	-4.20
Return to Operator's Labor, Risk and Management	-30.77	- <u>3.85</u>
Return to Land, Operator's Labor, Risk & Management	-20.27	-2.53



TABLE 2

Gross Returns and Costs Per Acre

at Various Yields and Prices

7 1 14

E-

Yield Per Acre Ton_ Crop Grain Silage Average +10% +20% +30% -30% -20% -10% Area Strathcona/ 5.6 6.4 7.2 8.0 8.8 9.6 10.4 Price per Ton 48.00 52.80 57.60 62.40 33.60 38.48 43.20 6.00 41.60 46.80 52.00 57.20 62.40 67.60 6.50 36.40 ACRE 56.00 61.60 67.20 72.80 39.20 44.80 50.40 7.00 PER 78.00 48.00 54.00 60.00 66.00 72.00 7.50 42.00 RETURNS 76.80 83.20 51.20 64.00 70.40 44.80 57.60 8.00 68.00 61.20 74.80 81.60 88.40 8.50 47.60 54.40 93.60 50.40 57.60 64.80 72.00 79.20 86.40 9.00 98.80 53.20 60.80 68.40 76.00 83.60 91.20 9.50 8.10 8.10 8.10 8.10 8.10 8.10 8.10 Cash Cultural Costs 5.02 3.86 4.25 4.63 3.47 2.70 3.09 Cash Harvest Costs ACRE 4.27 4.27 4.27 4.27 4.27 4.27 4.27 Cash Overhead Costs 15.84 16.23 16.62 17.00 17.39 15.46 Total Cash Costs 15.07 PER 70.54 70.54 70.54 70.54 70.54 Non-Cash Overhead 70.54 70.54 COSTS 3.16 2.54 2.67 2.79 2.91 3.04 2.42 Operator's Labor 90.07 91.09 89.05 89.56 90.58 88.03 88.54 Total Costs

PRODUCTION ECONOMICS BRANCH



ECONOMICS DIVISION



821-A

c.R.D. No. 821-B

Consensus Cols. - 1, 7, 8, 9

PRODUCTION COSTS

CROPS ε FORAGE

Date November 18, 1971
Reg Fc R. S. Andersen

County			Gre	ain Si	lage	50 (Acres)	Reg.	Don Don Don	Chris	tenser
(1)	(2)	(3)			(6)	(7)	(8)	(9)	(10)	(11)
		er Acre			Cash	and Labor Cos	ts Per Acre		1.57	Total
OPERATIONS	Equip.	Labor	Operator	Hired	Repairs	Kind	Materials Quantity	Cost/Unit	Cost	Per Ac.
Cultural			\$	\$	\$			Ś	S	3
Cultivator	.36	.36	.73		.71				Commencial Commence	A THE PERSON NAMED IN COLUMN N
Disk	1.14	.14	.29		.33					.33
Press Drill	.17	.17	.33		.31					.3.
						Barley 3/	4 bu.	1.35	1.01	1.02
			۳			Oats 14 b		0.90	1.13	1.13
						33-0-0 5	0 lbs.	0.03	1.63	1.43
						26-13-0	60 lbs.		2.25	2.25
Harrow	.04	.04	.07		.13					.13
Spray	.06	.06	.13		.10					.10
						M. C. P.	A. 70z.	0.50	.50	.50

					:					
		1	(1.55)			1	CASH CULT	TURAL COSTS		8.10
Harvest 1 cutting	5									
Swath	.22	.22	.4/4		.41			Service Die Schauer		.41
Harvest	.40	.40	.80		1.01					1.01
Dump Box	.40	.20		.40	.38					. 78
Silage Wagon	.40	.20		.40	.50					.90
Blower	.20	.20		.40	.36		*****			.76
		<u> </u>					<u> </u>			
			(1.24)				CASH HAR	EST COSTS		3.86
Cash Overhead										
Phone \$ 6 Crop Ir	surance	\$	Stationar	y, etc.	\$ 3					.18
Taxes 1 Years a	st \$2.0	0								2.00
Rent \$1253Average							· · · · · · · · · · · · · · · · · · ·			1.86
Building Insurance	50 La	bor Insu	rance \$	Mac	ninery In	surance \$10.8				.23
							CASH OVER	RHEAD COSTS		4.27
				(5)	(6)	Overhead			(10)	
TOTAL CASH COSTS/ACRE				1.20	4.29	4.27			6.52	16.23
EXPECTED CASH RETURNS	S PER ACE	Ε								56:00
LABOR/HOUR				TURNS/A			GROSS CAS	H MARGIN		39.77
Operator - \$ 2.00 Skilled - \$ 2.00 Unskilled - \$		S	Crop 11age	8 To	val 1 e \$7.	00				





	PRODUCTION COSTS CROPS & FORAGE		821-A (10)
			Total Cost Per Acre S
TOTAL CASH COSTS PER ACRE (821-A, page 1), col AV. INVESTMENT PER ACRE TO STUDY CROP	umns 5 + 6 + 10	F DED ACDE	\$16.23
Item	Depreciation \$	Interest \$ 10.50 .26 6.16 15.93	10.50 .00 13.36 45.88
		NON-CASH OVERHEAD OPERATOR'S LABOR	11.70ch
TOTAL NON-CASH COSTS PER ACRE			73:33
(A) TOTAL COSTS PER ACRE			89.56
- Operator's Labor (B) = Total Cost less Operator's Labor - Interest on Land	\$_86	5.77	
(C) = Total Cost less Operator's Labor and Int	erest on Land \$ 76	5.27	
(D) EXPECTED GROSS RETURNS PER ACRE			1156.00
RETURNS TO OPERATOR'S LAND, LABOR AND MA	NAGEMENT (D-C)		-20,27
RETURNS TO OPERATOR'S LABOR AND MANAGEME	NT (D-B)		-30.77

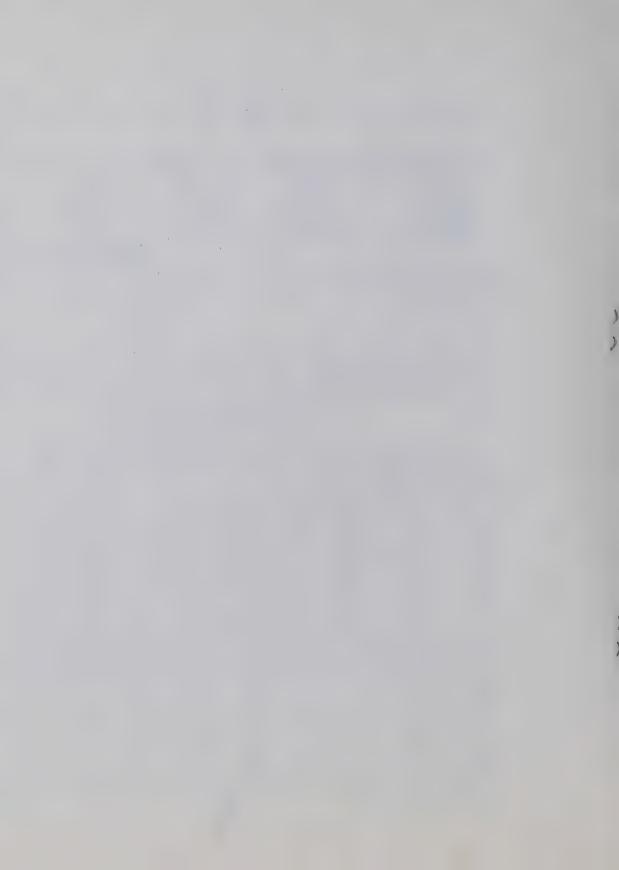
Table B

RETURNS PER ACRE TO OPERATOR'S LAND, LABOR AND MANAGEMENT AT VARIOUS YIELDS AND PRICES

COSTS PER UNIT (e.g. Bu.) AT VARIOUS YIELDS

1				Yield	Ton Pe	er Acre		
	Crop Grain Silage	20%	0.00				. 200	200
	Area Strathcona/	-30%	-20%	-10%	Average	+10%	+20%	+30%
	Leduc	5.6	6.4	7.2	8.0	8.8	9.6	10.4
	Price per Ton							
	6.00	-41.51	-37.10	-32.68	-28.27	-23.86	-19.44	-15.03
ACRE	6.50	-38.71	-33.90	-29.08	-24.27	-19.46	-14.64	- 9.83
	7.00	-35.91	-30.70	-25.48	-20.27	-15.06	- 9.84	- 4.63
S PER	7.50	-33.11	-27.50	-21.88	-16.27	-10.66	- 5.04	.57
RETURNS	8.00	-30.31	-24.30	-18.28	-12.27	- 6.26	24	5.77
RET	8.50	-27.51	-21.10	-14.68	- 8.27	- 1.86	4.56	10.97
	9.00	-24.71	-17.90	-11.08	- 4.27	2.54	9.36	16.17
	9.50	-21.91	-14.70	- 7.48	27	6.94	14.16	21.37
(c)	T. Cost Op. Labor & Land Interest	75.11	75.50	75.88	76.27	76.66	77.04	77.43
	Cash Cultural Costs	1.45	1.26	1.12	1.02	.92	.84	.78.
NO	Cash Harvest Costs	.48	.48	.48	.48	.48	.48	.48
Ĕ	Cash Overhead Costs	.76	.67	.60	.53	.49	.45	.41
	Total Cash Costs	2.69	2.41	2.20	2.03	1.89	1.77	1.67
PER	Non-Cash Overhead	12.60	11.02	9.80	8.82	8.02	7.35	6.78
OSTS	Operator's Labor	.43	.40	.37	. 35	.33	.32	.31
8	Total Costs	17.72	13.83	12.37	11.20	10.24	9.44	8.76
				(





Consensus Cols - 1	ed -	2 4	7	12 13 14	ī		INVESTMENT SCHEDULE	T SCHE	DULE				0	E, D	82 An	821-C
County Strathcona/Leduc	ona/	Leduc		5.	Crop		n Silage		Acres	50			D.A.	,	.ld	Christensen
		(2)	(3)	(4)		(9)	7) (2		(6)	(01)	(11)	(12)	(13)	(14)	(15)	(91)
FOLLOWENT	\$		Salvage	~	Study	0	Life	-			Study	dy Crop				
	27.5	Price	Value	Acres	Acres	× %	Yrs. Dep	Deprec.	Int.*	Deprec	MSTS/AC.	H.P.	Acres/ Hour	Fuel	Cash Losts/Hour	Total
Cultivator 14	\$ 1 7	1400\$	\$ 140	200	100	0	20 \$ 12	2.60\$.25	. 23	06	5.5		\$.18	\$.18
Drag Harrows 4	101	1000		250	20	20 2	25	7.20	8.25	.14	.17	06	27.0	1	.20	.20
	14,	2500	250	250	. 50	20	12	5.63	20.63	.11	17.	06	7.0	1	50	. 50
Press Drill 1	121	2800	280	250	50	20 2		25.20	23.10	.50	977.	077	- 0	!	.54	-54
Sprayer 4	40.	650	65	250	50	20 1	2	9.75	5.36	.19	.11	07	16.0	!	077.	07.
Swather SP 1	12,	5000	500	250	50	20	8 11	2.50	41.25	2.25	.83	1	4.5	.76	1.07	1.83
Harvester M.	Med.	1,000	1,00	50	50	100	5 1444	00.1	33.00	2.88	99.	06		1	.75	. 75
Dump Box 5T	EH	3800	380.	25	25	100 2	20 171	00.	156.75	3.42	3.14	07	1.25	1	.43	.43
Silage Wagon 5T	E	3800	380	25	25	1001	10 342	00.	156.75	6.84	3.14	07	1.25	1	09.	09.
Blower		1500	150	50	50	100	8 168	8.75	61.90	3.38	1.24	06	2.5	1	87.	877
				HRS/ YEAR	HRS/ YEAR											
Tractor D		12000	3600	156	37	24	8 252	00.	04.041	5.04	2.80	06	4.9	1.18	09.	1.78
Tractor G		0009	1800	78	21	27	8 141	1.75	78.98	2.84	1.58	077	7.0	C	28	
Tractor D		12000	3600	1	1	10	8 105	00.0	58.50	2.10	7.17	06			09.	1.78
<pre>* Interest on Equipment ** Includes tractor compl</pre>		em	高 ent	FIXED	D COSTS	5	STUDY CR	a.	d	. 60	1					
where applicabl	le.								1	(d	1					
LAND, BUILDINGS,		Cost	Average	% to	Life _	Fixed	ed Costs	s on	50 Ac	Acres	+		Ц	Cropla	and Acres	
EQUIPMENT, ETC.	-	Price	Value	Crop	-	Deprec		*.	Other	Other	lotal		S.1.	Silage	20	Acres
Land (Years)	2	<i>J</i> F	7500		S XX	×	\$25	5.00.5	S-	i i	525.00	00	Gre	Grain	200	Acres
Supplies, Shop, To	50 03	3000	1650	20	××	20%	00 23	23.10	.50		50.60	0.0	Tame	Hay	50	Acres
Buildings Silo	200	Ve8000	14400	100	20	360.0	00 308	3.00			668.0	00	Wild	1	20	Acres
Equipment			10618	××	××	1497.	.38 796	245	10.87		2304.67	5				Acres
TOTAL	-										3548.	27	1	Total	320	Acres
" Interest on land,	d,	bldgs.	200													Control of the second of the s



